REMARKS

An Interview was conducted on August 4, 2009, where options for overcoming the obviousness rejection based on Boudreau *et al.* were discussed. In particular, the participants discussed (1) moving the limitations of Claim 5 into Claim 1, (2) the effect of particle size on patentability, and (3) the possibility of submitting additional experimental evidence relating to the a/b ratio. Applicant's representative would like to thank the Examiner for his time and consideration in conducting the Interview.

Claims 1 and 3 are presented for examination, with Claim 1 being currently amended. Claims 4-11 are canceled. Claim 1 is amended to include the limitations of canceled Claims 4-5. Support for the amendment is found in the claims as originally filed and on pages 2-3 of the specification.

Specification objections

The Office Action objected to Table 4 of the specification, due to alleged errors in the a/b ratio. Applicants respectfully submit that Table 4 contains no such errors. Page 4 of the Office Action indicated that the a/b ratio for Table 4 is expected to be in the range from 10 to 13.3, which is incorrect. Table 4 shows the concentration of dispersion (a) is 0.1mM. Table 4 also shows that the amount of ionic liquid necessary to be added is in the range from 0.15mL and 0.2mL. This is also described in the supporting paragraph for Example 5 on page 9 of the specification. A straightforward calculation clearly demonstrates that the ratio a/b is in the range from 0.1mM/0.2mL to 0.1mM/0.15mL, which is 0.5 to 0.67 mM/mL. This is the range provided in Table 4. Accordingly, the objection is requested withdrawn.

Obviousness rejection under § 103(a)

The Office Action rejected Claims 1 and 3-5 as being unpatentable over WO 02/34863 (Boudreau *et al.*). Although the Office Action acknowledged that Boudreau *et al.* is silent as to the limitation $0.05 \leq a/b < 1.0$, it was again alleged that the ratio a/b is the ionic liquid absorption characteristic for each specific pair of particle/ionic liquid and aqueous medium, such that, at the point of complete extraction of the particles, the higher the ratio, the better the specific ionic liquid performs. However, the Office Action failed to give any weight to the declaration under 37 C.F.R. 1.132 filed by Applicants on June 10, 2009. The Office Action alleged that the declaration includes statements that the claimed subject matter functions as it was intended to function and that it contains no objective evidence relevant to the issue of obviousness.

Applicants traverse the rejection, because the claims, specification, and declaration filed on June 10, 2009 all clearly show that the Office Action's characterization of the a/b ratio is incorrect. First, the Office Action's response to Applicants' arguments filed on June 10, 2009 contains clear factual errors. On page 4, the Office Action uses an incorrect assessment of Example 5 and Table 4 of the specification to support an assertion that the claimed a/b ratio range is the result of routine experimentation. Specifically, the Office Action indicated that the a/b ratio for Table 4 is expected to be in the range from 10 to 13.3, which is incorrect for the reasons provided above. The a/b ratio range in Example 5 and Table 4 does, in fact, fall within the claimed range.

The Office Action then alleged that the claims do not recite a feature relied upon in Applicants' response of June 10, 2009, namely, that the "particles are completely recoverable in

the ionic liquid in the a/b ratio of $0.05 \leq a/b < 1.0$." The claims do recite a method for "recovery." Although "perfect" recovery is not explicitly claimed, the meaning of "recovery" is described in the specification. Paragraph F on page 6 teaches to "a method to recover fine particles." Examples 1-6 of the specification all refer to amounts of the ionic liquid (b) given a set concentration (a) that result in perfect recovery of fine particles. It is not necessary to read additional limitations from the specification into the claims. Claim 1 is drawn to a "method of recovering fine particles" where a/b is in the range of $0.05 \leq a/b < 1.0$. The claims inherently include the characteristic that the particles are recoverable in the ionic liquid by the claimed method.

The declaration filed on June 10, 2009 and the specification clearly show that the a/b ratio is not the "ionic absorption efficiency indicator" or "ionic liquid absorption characteristic" that is specific to each pair of particle and ionic liquid. The declaration includes experimental evidence showing that there is a specific workable range for a/b that contains upper and lower limits. Outside of this range, recovery of the fine particles under the claimed method is not possible. The present application teaches that when $a/b \geq 1$, phase separation is either incomplete such that there is no recovery of the fine particles or that phase separation does not occur at all. If a high value of a/b is optimal, as the Office Action alleges, then the presence of an upper limit would be remarkable and unexpected. None of the Examples provided in the specification or declaration reveal workable a/b ratio values above the claimed range.

Examples 4-5 of the specification not only supports the claimed a/b ratio range but also shows that the a/b ratio is not the "ionic liquid absorption characteristic" for each specific pair of

particle and ionic liquid. Examples 4-5 indicates that the a/b ratio range is the same for perfect recovery of particles for four different dispersed particles where the concentration (a) is 0.1mM. These Examples show that the a/b values are independent of the specific particle. Therefore, a/b cannot be the "ionic liquid absorption characteristic" that is unique to each pair of particle and ionic liquid. Examples 4-5 shows that when the particle type or size changes, the amount of ionic liquid necessary, and thus the a/b ratio, remains the same. The claimed range would not have been routinely discoverable in light of Boudreau *et al.*

The Office Action also alleges that mere routine optimization was performed in "finding the right ionic liquid." Use of one of a number of ionic liquids is taught in amended Claim 1 (original Claim 5) with numerous fine particles, as shown in Examples 4-5. The claimed a/b ratio range is applicable to all. *In toto*, the Office Action alleges "routine" optimization of *two* important parameters: the ionic liquid and the a/b ratio. However, if the a/b ratio is an indicator of a good ionic liquid, as it is also alleged, then it would be necessary to find the optimal a/b ratio range before determining the optimal ionic liquids. However, the Office Action states that finding "the right" ionic liquid is necessary before determining optimal a/b ratio range. The Office Action provides no explanation as to how one of ordinary skill would arrive at the "right ionic liquid" in light of the prior art. Similarly, it would not have been "obvious to try" to make the claimed ratio a/b with a reasonable expectation of success. *See In re* Zurko, 258 F.3d 1379, 59 U.S.P.Q.2d 1693 (Fed. Cir. 2001) (holding an assertion of common knowledge cannot be relied upon to overcome deficiencies in the prior art without evidentiary support).

Boudreau *et al.* fails to teach the claimed ionic liquids and the claimed a/b ratio range.

The necessity of finding workable ionic liquids and a/b ratio ranges in order to arrive at the claimed invention would go beyond routine optimization discovered through routine experimentation.

Conclusion

In light of the foregoing, it is submitted that the application is now in condition for allowance. It is therefore respectfully requested that the rejections be withdrawn and the application passed to issue.

Respectfully submitted,
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